



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,987	07/11/2003	Manuel J. Tavares	IR-3225(EA)CIP	4251
193	7590	06/20/2005	EXAMINER	
LORD CORPORATION PATENT & LEGAL SERVICES 111 LORD DRIVE CARY, NC 27512			WU, IVES J	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/617,987

Applicant(s)

TAVARES ET AL.

Examiner

Ives Wu

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/11/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Specification

The disclosure is objected to because of the following informalities:

On page 2, paragraph [0007], it cites U.S. Pat. No. 5,608,208 (Delco), the teaching of this patent is irrelevant to the disclosure of this paragraph. Examiner did extensive search to find that this disclosure is from Stanftleben et al (US005,608,028), not by Nemirovsky (US005,608,208), which was also cited in the Information Disclosure Statement. Please correct the specification and Information Disclosure Statement.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1713

(1). Claims 1,4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song (US005567761A) in view of Harper (US005962586A).

As to **part (A)** of a two part curable liquid potting composition in **independent claim 1**, Song (US005567761A) discloses an **Aqueous two-part isocyanate-free curable** polyurethane resin systems and its Aqueous-borne coating compositions containing: (1) an acetoacetylated polymer; and (2) a polyacrlate having at least two (meth) acrylate end groups, have long **pot** lives and may be **cured** by the evaporation of water in the presence of a basic catalyst, Abstract, line 1-8; In 2nd embodiment, the part (2) is prepared by an acrylated urethane with a **single NCO** terminus by **capping a polyisocyanate** with a **monohydroxyl** functional (meth)acrylate using an appropriate hydroxyl (OH) to isocyanate (NCO) ratio, Col. 12, line 53-56.

As to the free isocyanate < 1000 ppm in part A is concerned, it can be as little as **zero**.

Song **does not teach** using the same part (B) as cited in the instant claim 1.

However, Harper **teaches** using the **polybutadiene-maleic anhydride adduct** in a liquid curable potting compound, Abstract, line 7, Col. 1, line 17-20; 1,2-Polybutadiene resins having a molecular weight of **1000 to 4000**, Col. 5, line 18-19.

The advantage of using anhydride adduct of polybutadiene is that it contains the hardener or hardeners for the curable liquid potting composition, Col. 2, line 13-14.

It would have been obvious at the time of applicant's invention to combine the polybutadiene-maleic anhydride adduct taught by Harper with Song's aqueous two-part isocyanate-free curable polyurethane resin systems to form applicant's liquid curable potting composition because it will achieve the aforementioned advantage.

Furthermore, since both Song and Harper teach a liquid curable composition for potting, a person of ordinary skill in the art would have expected the combination of Song and Harper (that will cover the part (A) and part (B) of instant claim 1) to work in an additive or cumulative manner. In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

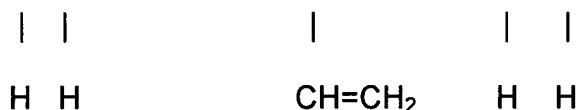
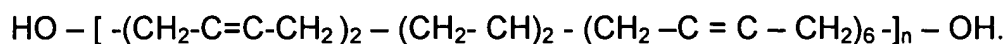
As to the limitation of **dependent claim 4**, Song disclose the examples of aromatic polyisocyanates including **4,4'-di-isocyanatodiphenyl methane**, Col. 9, line 24-26.

(2). Claims 2,3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song (US005567761A) in view of Harper (US005962586A), and further in view of Boeckeler (US005587433A), Frisch et al (US005672653A).

As to the limitation of **dependent claim 2 & 3**, both Song and Harper **do not teach** the polybutadiene in the anhydride adduct to be **hydroxyl terminated polybutadiene** having **1.9 – 2 OH group per molecule** and **number average molecule weight from 1000 – 10,000**.

Art Unit: 1713

However, Boeckeler **teaches** a hydroxyl terminated polybutadiene compositions, Col. 1, line 8-9; the hydroxyl terminated polybutadiene has the general formula with **2 OH** per molecule:



The preferred hydroxyl terminated polyisocyanate is **POLYbd 45 HT** available from Atochem Co, Col. 2, line 63 – Col. 3 line 8, having molecular weight **2800**, Col. 1, line 49-50 - Frisch et al (US005672653A).

The advantage of selecting hydroxyl polybutadiene for the anhydride adduct is because resins prepared with hydroxyl terminated polybutadiene possess unique and desirable properties. These properties includes low water absorption, low moisture permeability, high hydrolytic stability, high solvent and chemical resistance, excellent low temperature flexibility and good bonding to a variety of substrates, Col. 1, line 14-19- Boeckeler (US005587433A); hydroxyl terminated polybutadiene can be reacted rapidly with polyisocyanates to yield tough, elastomeric polymers which have good hydrolytic stability, Col. 1, line 22-26- Boeckeler (US005587433A).

Therefore, it would have been obvious at time of applicant's invention to specify hydroxyl terminated polybutadiene from Boeckler's disclosure as the anhydride adduct of Harper because it will achieve the aforementioned advantage.

(3). Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Song (US005567761A) in view of Sanftleben et al (US005608028A).

As to the **part (A)** of a **polybutadiene polyol capped polyisocyanate** in **independent claim 5**, Song **does not teach** using polybutadiene polyol capped polyisocyanate.

However, Sanftleben et al (US005608028A) **teach** that in a preferred embodiment, the polyol consists essentially of about 90 wt % polybutadiene polyol, Col. 3, line 27-29; a multifunctional isocyanate is added in an amount sufficient to achieve a stoichiometrically correct ratio with the polyol, Col. 3, line 21-23.

The advantage of using polybutadiene polyol to cap the polyisocyanate is because it is desirable if the adhesion characteristics of the potting compound to be used as an adhesive, coating, or encapsulating material for a wide variety of applications, Col. 2, line 34-38; Sanftleben et al teach this potting compound composed of polybutadiene urethane having physical and mechanical properties which enable the potting compound to maintain its sealing integrity under intense thermal cycling conditions, Col. 2, line 7-11.

Therefore, it would have been obvious at time of applicant's invention to replace the polyols used in Song's disclosure for the liquid curable potting composition with

Art Unit: 1713

polybutadiene polyol for capping the polyisocyanate from Sanftleben et al teaching because it will inherit the aforementioned advantage.

As to the free isocyanate < 1000 ppm in part A is concerned, it can be as little as **zero**.

As to **part (B)** of anhydride adduct of a polyol, Song disclose by citing: The organic compounds containing at least two hydroxyl groups are reacted with the above organic polyisocyanates to form the single NCO-terminated or hydroxyl-terminated urethane prepolymer. Useful organic compounds containing at least two hydroxyl groups are not limited to ester polyol, Col. 9, line 39-40; suitable ester polyols include reaction products of alkyl diols and phthalic anhydride, glutaric anhydride, maleic anhydride and the like, Col. 9, line 59-65.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ives Wu whose telephone number is 571-272-1114. The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Art Unit: 1713

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: Ives Wu

Art Unit: 1713

Date: June 13, 2005


DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700